Nazdar S2 Series System-2 Gloss Vinyl Screen Ink

NAZDAR
INK TECHNOLOGIES

System-2 Series ink is a high gloss, solvent-based screen ink formulated for optimum performance on pressure-sensitive vinyl and top coated polyesters used for decal applications.

Substrates

Pressure sensitive calendered vinyl (PVC)
Pressure sensitive cast vinyl (PVC)
Top coated / Print treated polyester (PET)

Substrate recommendations are based on commonly available materials intended for the ink's specific market when the inks are processed according to this technical data. While technical information and advice on the use of this product is provided in good faith, the User bears sole responsibility for selecting the appropriate product for their end-use requirements. Reference the 'Quality Statement' at the end of this document.

Mesh
230-305 tpi (90-120 tpcm) monofilament polyester mesh for most applications.

Stencil
Use direct emulsions and capillary films which are solvent resistant.

Squeegee
70-80 durometer polyurethane squeegee.

Coverage
Depending upon ink deposit, the estimated coverage per gallon: 1,200-1,800 square feet (111-167 square meters)

Screen Printing
Nazdar's S2 Series must be thinned approximately 10% by weight prior to printing.
Add only enough ink to the screen to be able to print for 5-10 minutes. Add additional ink in small increments throughout the print run to maintain screen stability. Thoroughly mix the ink prior to printing. Improper mixing can lead to inconsistent color and ink performance.

Maintain ink temperature at 65°-90°F (18°-32°C) for optimum print and cure performance. Lower temperatures increase the ink viscosity, impairing flow and increasing film thickness. Elevated temperatures lower the ink viscosity, reducing print definition and film thickness.

Pretest to determine optimum printing parameters for a particular set of ink, substrate, screen, press, and curing variables/conditions.

Nazdar does not recommend inter-mixing this ink series with other inks or series.

Drying / Curing Parameters
Nazdar's S2 Series Ink dries by solvent evaporation. S2 jet dries in an industrial oven at temperatures of 120 - 150°F (46 - 66°C) in approximately 40 seconds. Good air circulation is necessary to remove the vaporized solvents. Multiple layers of ink may require longer drying times than a single layer.

Adhesion Testing
- Touch of ink surface – the ink surface should be smooth.
- Thumb twist – the ink surface should not mar or smudge.
- Scratch surface – the ink surface should resist scratching.
- Cross hatch tape test – per the ASTM D-3359 method, use a cross hatch tool or a sharp knife to cut through ink film only; then apply 3M #600 clear tape on cut area, rub down, and rip off at a 180 degree angle. Ink should only come off in actual cut areas.

Cleanup
For screen cleaning, similar products to those listed below may be used.

Screen Wash (Prior to Reclaim): Use IMS201 Premium Graphic Screen Wash or IMS203 Economy Graphic Screen Wash

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Press Wash (On Press): Use IMS301 Premium Graphic Press Wash

Ink Modifications

Clears / Varnishes
Mixing Clear: use to reduce the density of colors.
Overprint Clear: Use S227 Overprint Clear to provide added surface protection and increase durability. Use 223900RP Part A Urethane Clear / 223790RP Part-B Catalyst (See separate Technical Data Sheet) to extend outdoor durability.

Additives
Prior to production, test any additive adjustment to the ink. Inks containing additives should not be mixed with other inks.

> Example for additives: Ink at 100g with 8% of an additive is calculated as: 100g ink + 8g additive = 108g total

Reducer / Thinner
Use the following item(s) to reduce the viscosity of these inks. Over reduction can reduce print definition, film thickness and adversely affect cure.
S230 Thinner: add up to 20%

Retarder
Use S231 Retarder to improve screen stability during hot climate conditions or for slower drying. Add up to 20%.

Use CARE53 Gel Retarder can be used to improve screen stability without lowering the viscosity or when printing fine line details. Add up to 10%. Note: CARE 53 is not recommended for backlit applications.
Over reduction with retarder can result in blocking.

General Information
Handling
Refer to the SDS for recommendations on handling.
Wear gloves and barrier cream to prevent direct skin contact. Safety glasses are suggested in areas where ink may be splashed. If product does come in contact with skin, wipe ink off with a clean, dry cloth (do not use solvent or reducer). Wash the affected area with soap and water.

Consult the applicable Safety Data Sheet (SDS / MSDS) for further instructions and warnings.
For assistance on a wide range of important regulatory issues, consult the following Regulatory Compliance Department link at http://www.nazdar.com or contact Nazdar Ink Technologies - World Headquarters (see contact listing at the end of this document).

Weathering / Outdoor Durability
At full strength and properly cured, the outdoor durability when mounted vertically in the Central U.S.A: **3 years**
The use of 223900RP Part-A Urethane Clear /223790RP Part-B Catalyst (See separate Technical Data Sheet) increases the projected outdoor durability (refer to weathering information under Product Listing).

Outdoor Durability Exceptions
S250 Barrier White, S258 Tinting White, S275 Super Opaque White can chalk during outdoor exposure. To achieve the best outdoor durability, always apply an overprint clear such as 223900RP/223790RP.

Outdoor Durability Variables
Outdoor durability cannot be specified exactly. Slight color change and loss of gloss should be expected. Variables affecting a printed part's durability include:
- Ink film thickness and degree of curing
- Color formulation: large amounts of mixing clear or white, mixing several colors into one match, and/or mixing a small quantity of any single color
- Substrate type and age
- Mounting angle and directional orientation
- Geographical location
- Degree of air pollution
- Excessive abrasion

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- Non-clear coated prints exhibit more color change and loss of gloss.

Storage / Shelf Life
Store closed containers at temperatures between 65°-78°F (18°-25°C). Storing products outside of these recommendations may shorten their shelf life.
Standard items useable for a period of at least **48 months** from the date of manufacture.

Ink taken from the press should not be returned to the original container; store separately to avoid contaminating unused ink. Store closed containers at temperatures between 65°-78°F (18°-25°C). Storing products outside of these recommendations may shorten their shelf life.

Standard Color Range
Based on information from our raw material suppliers, these ink products are formulated to contain less than 0.06% lead. If exact heavy metal content is required, independent lab analysis is recommended.

Halftone Colors
Halftone Extender Base is used to reduce the density of any of the halftone colors.

Standard Halftone Colors are formulated with hues and densities common to the graphic industry.

Standard Printing Colors
Standard Printing Colors: have excellent opacity and flow characteristics. These colors are intended to work as supplied.

Pantone Base Colors
Pantone Matching System Base Colors are used to simulate the Pantone® Formulation Guide when printed on a white substrate. These inks are press ready, can be used in matches to achieve Pantone color simulations, or let down with mixing clear.

60 Series Colors: 61-69 colors have a high pigment concentration. These colors are formulated to have some white pigment or opaque pigment to increase opacity.

Transparent Colors
Transparent Colors produce clean and vibrant colors. Transparent Colors can be used as supplied, in color matches or let down with mixing clear.

Special Effect Pigments
When inks are to be printed with a special effect color, all ink layers must be evaluated for intercoat adhesion before proceeding with the production run. To maximize intercoat adhesion, specialty colors should be printed as late as possible in the print sequence.
Pigments may settle in the container; prior to printing, thoroughly mix the ink.
The following special effect pigments may be added to the ink. Contact Nazdar for the item number(s) and availability of special effect products or they can be found at www.nazdar.com.

Metallic Silver (aluminum), add up to: 8%
Metallic Gold (bronze), add up to: 15%
Chemical reactions in metallic inks may result in viscosity, color and printability changes over time; due to this, mix only enough metallic ink to be used the same day.

Pearlescent / Interference, add up to: 20%
Multi-Chromatic, add up to: 10%
Phosphorescent , add up to 30%

Fluorescents, add up to: 30%
Fluorescent colors fade quickly with exposure to ultraviolet light. This includes outdoor exposure as well as UV reactor exposure.

Color Card Materials
The following is a list of available literature representing this ink series.

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- Conventional Color Card (CARD375): shows the Standard Colors, Pantone Matching System Base Colors, and Halftone Colors.
- Special Effects Color Card (CARDSPL): shows various special effect pigments mixed with clear

Packaging / Availability

Contact your Nazdar distributor for product availability and offering.

Item Type	Item Number	Item (or Color) Description	Est. Durability without Overprint Clear (years)	Est. Durability with Over Print Clear (years)
Clears / Varnishes	S227	Overprint Clear		
Clears / Varnishes	223900RP	2-Part Overprint Clear		
			*Colors Chalk When Not Overprinted	With 223900RP/23790RP Clear
Standard Colors	S2LF11	Lemon Yellow	3	4
Standard Colors	S2LF12	Medium Yellow	4	4
Standard Colors	S219	Fire Red	3	4
Standard Colors	S2LF20	Brilliant Orange	3	4
Standard Colors	S224	Black	3	4
Clears / Varnishes	S226	Mixing Clear	NA	NA
Standard Colors	S250	Barrier White	2*	4
Standard Colors	S275	Super Opaque White	2*	4
Transparent Colors	S2PB10	Transparent Primrose Yellow	3	4
Transparent Colors	S2PB12	Transparent Medium Yellow	3	4
Transparent Colors	S2PB13	Transparent Green	3	4
Transparent Colors	S2PB18	Transparent Red	3	4
Transparent Colors	S2PB20	Transparent Orange	3	4
Transparent Colors	S2PB22	Transparent Blue	3	4
Transparent Colors	S2PB33	Transparent Purple	3	4
Transparent Colors	S2PB60	Stop Sign Red	3	4
Halftone Colors	S2HTEX	Halftone Extender Base	NA	NA
Halftone Colors	S2HTB	Halftone Blue	3	4
Halftone Colors	S2HTR	Halftone Red	3	4
Halftone Colors	S2HTY	Halftone Yellow	3	4
Halftone Colors	S2HTBK	Halftone Black	3	4
Mixing Colors	S258	Tinting White	2*	4
Mixing Colors	S259	Tinting Black	3	4
Mixing Colors	S260	Orange	3	4
Mixing Colors	S261	Yellow	3	4
Mixing Colors	S262	Warm Red	3	4
Mixing Colors	S263	Rubine Red	3	4
Mixing Colors	S264	Rhodamine Red	3	4
Mixing Colors	S265	Purple	3	4
Mixing Colors	S266	Violet	3	4
Mixing Colors	S267	Reflex Blue	3	4
Mixing Colors	S268	Process Blue	3	4
Mixing Colors	S269	Green	3	4
Additives	S230	Thinner		
Additives	S231	Retarder		
Additives	S248	Flatting Paste		
Additives	CARE53	Gel Retarder		
Cleaners	IMS201	Premium Graphic Screen		

		Wash		
Cleaners	IMS203	Economy Graphic Screen Wash		
Cleaners	IMS301	Premium Graphic Press Wash		

Nazdar Quality Statement

Nazdar® stands behind the quality of this product. Nazdar® cannot, however, guarantee the finished results because Nazdar® exercises no control over individual operating conditions and production procedures. While technical information and advice on the use of this product is provided in good faith, the User bears sole responsibility for selecting the appropriate product for their end-use requirements. Users are also responsible for testing to determine that our product will perform as expected during the printed item's entire life-cycle from printing, post-print processing, and shipment to end-use. This product has been specially formulated for screen printing, and it has not been tested for application by any other method. Any liability associated with the use of this product is limited to the value of the product purchased from Nazdar®.

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